Mode Management Drill Down

Alex Kirn
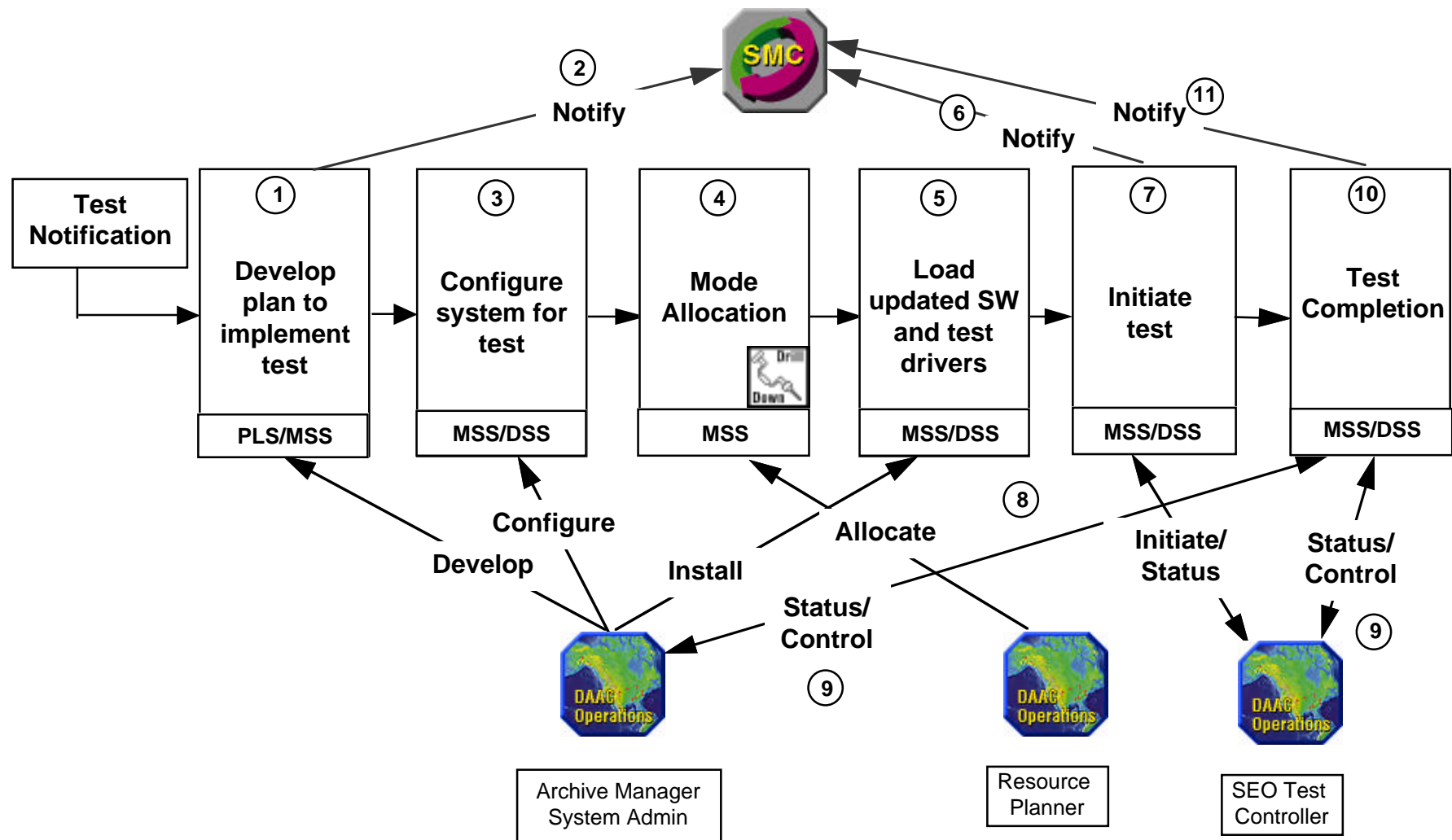
akirn@eos.hitc.com

30 October 1995

Parallel Test & Operations
Functional Flow

SMC

② **Notify**

⑥ **Notify**

⑪ **Notify**

Test Notification

① Develop plan to implement test	③ Configure system for test	④ Mode Allocation	⑤ Load updated SW and test drivers	⑦ Initiate test	⑩ Test Completion
PLS/MSS	MSS/DSS	MSS	MSS/DSS	MSS/DSS	MSS/DSS

Develop

Configure

Install

Allocate

⑧

Initiate/ Status

Status/ Control

Status/ Control

⑨

DAAC Operations

DAAC Operations

DAAC Operations

⑨

⑨

Archive Manager System Admin

Resource Planner

SEO Test Controller

Mode Management Overview

- **Scope includes:**
  - - **Procedural Activities: Planning and Configuration**
  - - **Run-time Activities: Execution, Monitoring, and Control**
- **Software Modes - Production, Testing, Training, . . .**
- **Enables simultaneous execution of different software modes on the same hardware**
- **Ensures Data Integrity and Process Distinction and Separation**

Mode Management
Design Drivers

- ECS shall support simultaneous production and testing modes

- ECS shall support sustaining engineering activities

- ECS shall be capable of monitoring each mode of operation
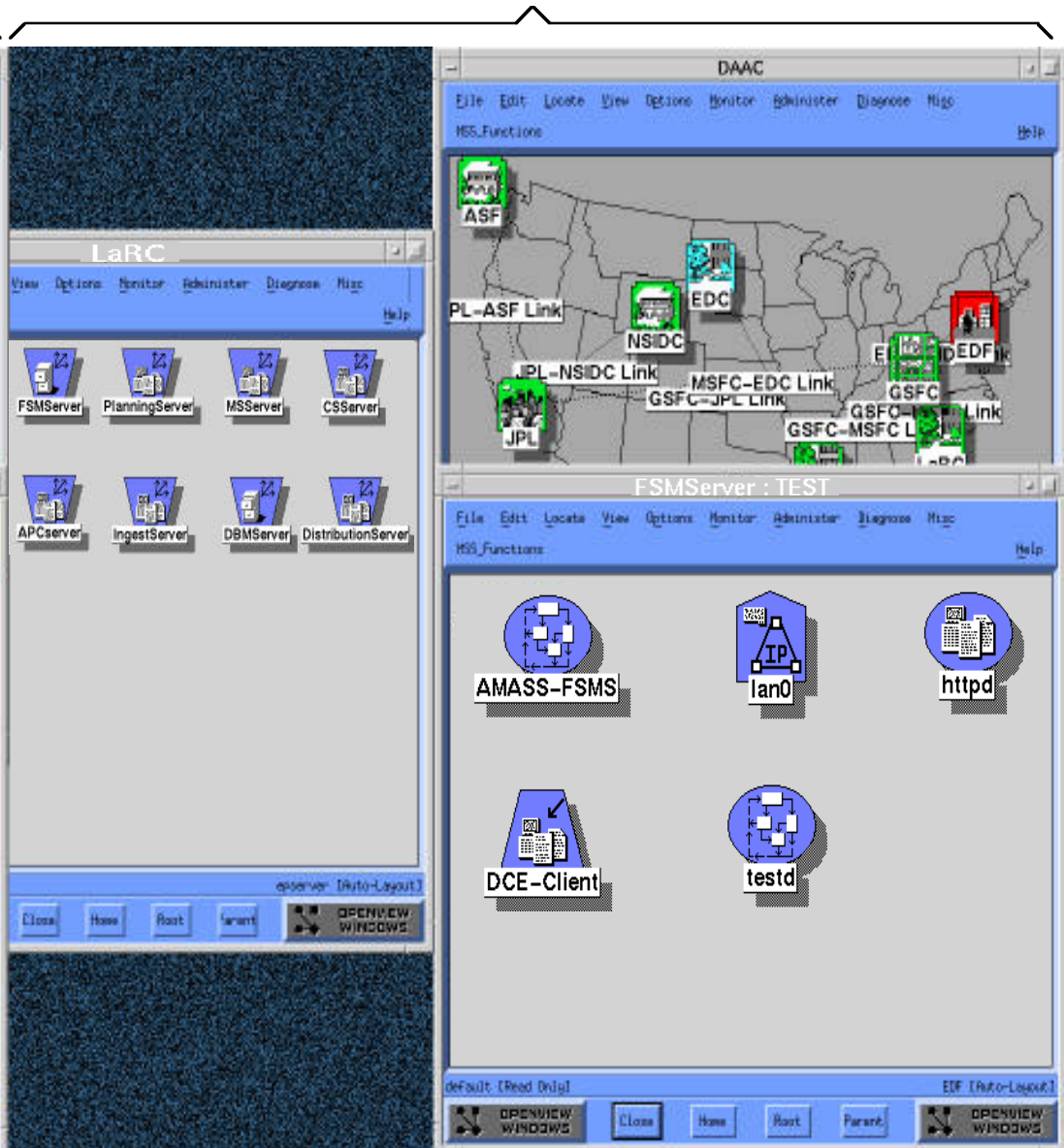
Mode Management Design

General:

- Modes are managed from within HP OpenView

- No more than one Production Mode active at any given time

- Multiple Test and Training Modes

- Once an application has been initiated within a given mode it remains in that mode for the life of the process

- Modes are configuration controlled

- Support data sets are pre-partitioned based on mode identifier

- Infrastructure-based applications are mode independent

    - HP OpenView

    - Agents

    - OODCE

Part of HP OpenView
Session #1

Part of HP OpenView
Session #2

Mode Management Design
(Continued)

ECS Developed Applications

- Mode Management capabilities will be incorporated as part of a managed process framework
- Transparent to the application developer

COTS Applications

- Some will be mode independent
- Custom developed wrappers
- Modify Configuration files
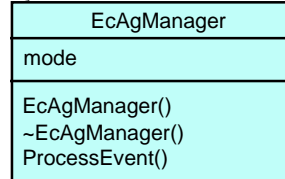- Some may not be capable of being mode managed
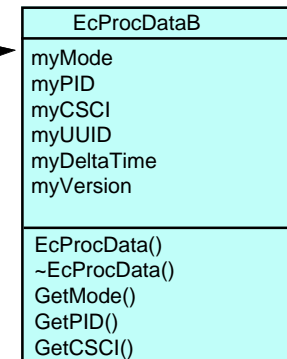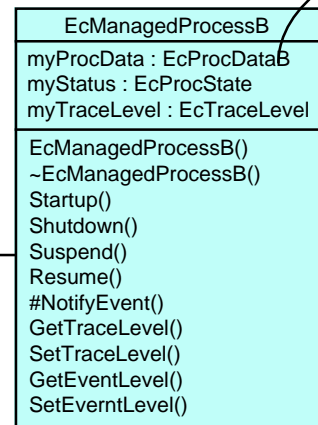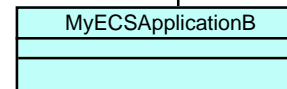
Mode Management Object Model

HP OpenView

EcProcDataB

myMode
myPID
myCSCI
myUUID
myDeltaTime
myVersion

EcProcData()
~EcProcData()
GetMode()
GetPID()
GetCSCI()

Set, Get,
Traps, Status

EcManagedProcessB

myProcData : EcProcDataB
myStatus : EcProcState
myTraceLevel : EcTraceLevel

EcManagedProcessB()
~EcManagedProcessB()
Startup()
Shutdown()
Suspend()
Resume()
#NotifyEvent()
GetTraceLevel()
SetTraceLevel()
GetEventLevel()
SetEverntLevel()

(Shown Partial)

EcAgManager

mode

EcAgManager()
~EcAgManager()
ProcessEvent()

monitors and controls

inherits

MyECSApplicationB

identifies and creates

EcAgEvent

myEventID : EcEventID
myMode : EcMode
myEventType : EcEventType
mySeverity : EcSeverity
theTransactionID : EcTransactionID
myMsgNum : EcMsgNumber

EcAgEvent()
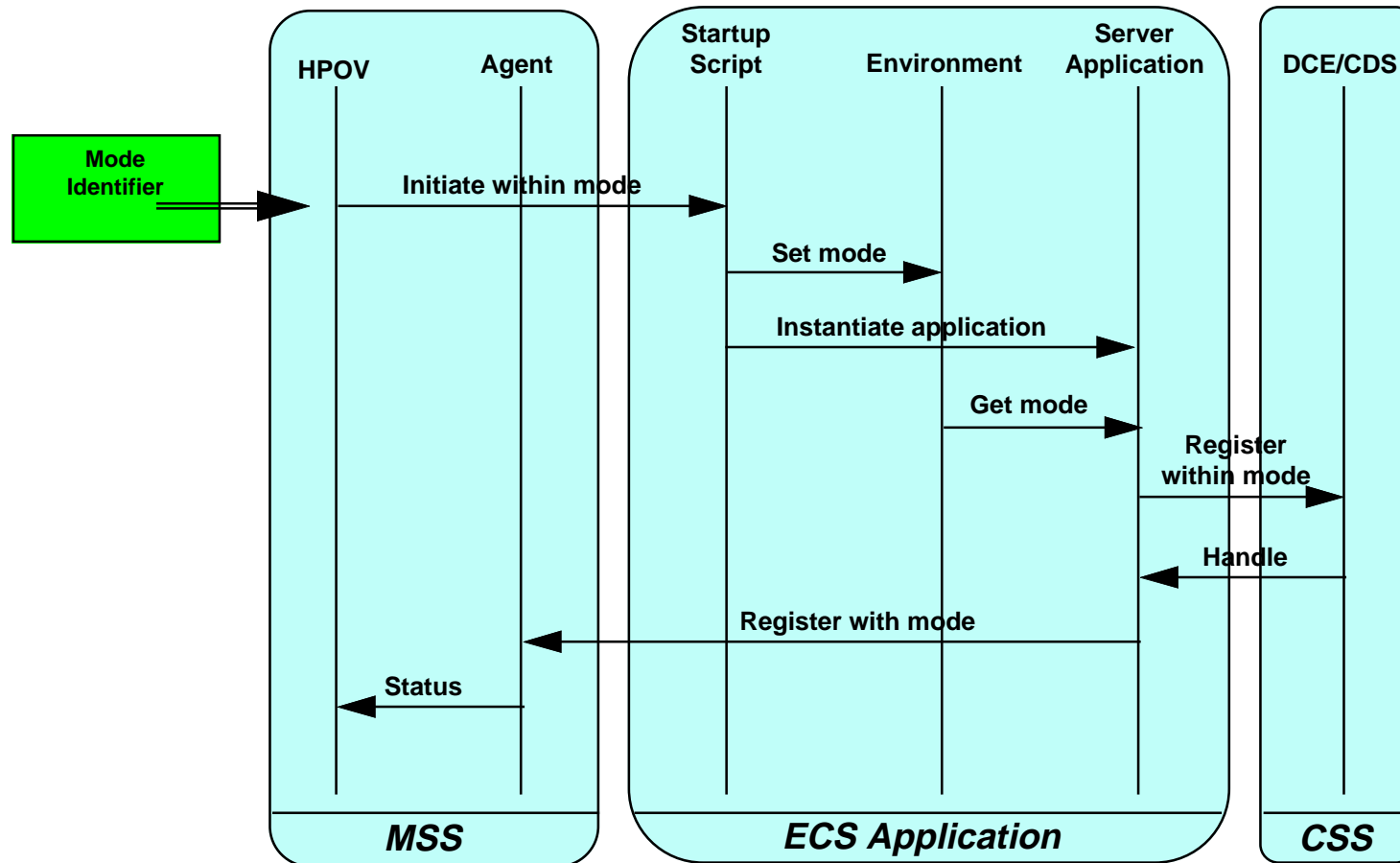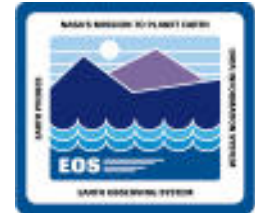~EcAgEvent()
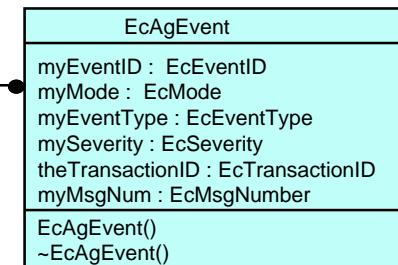
**For details, reference:
DID 305, Volume 29**

Mode Management Event Trace
(High Level)

Current Status

- **COTS**
  - **Evaluating TIVOLI Management Environment (TME) for system and process level Mode Management capabilities**

- **Prototypes**
  - **EP7 - Mode Management capabilities**

- **Next Steps**
  - **Evaluate all currently selected ECS COTS for Mode Management compliance**
  - **Evaluate Mode Management support for SSI&T process**
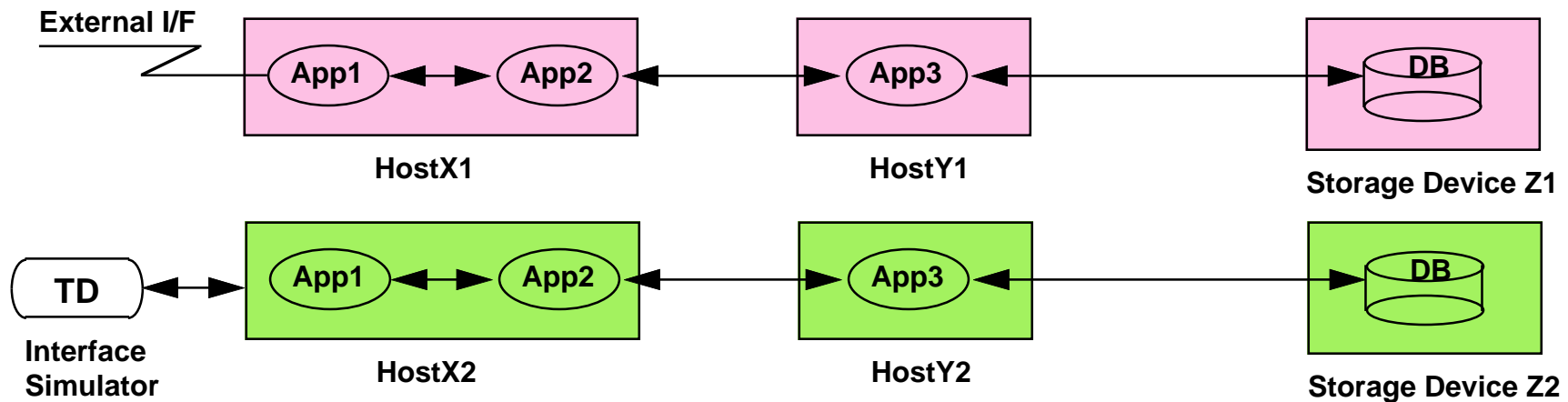 - **Evaluate Mode Management migration to CORBA**

Summary
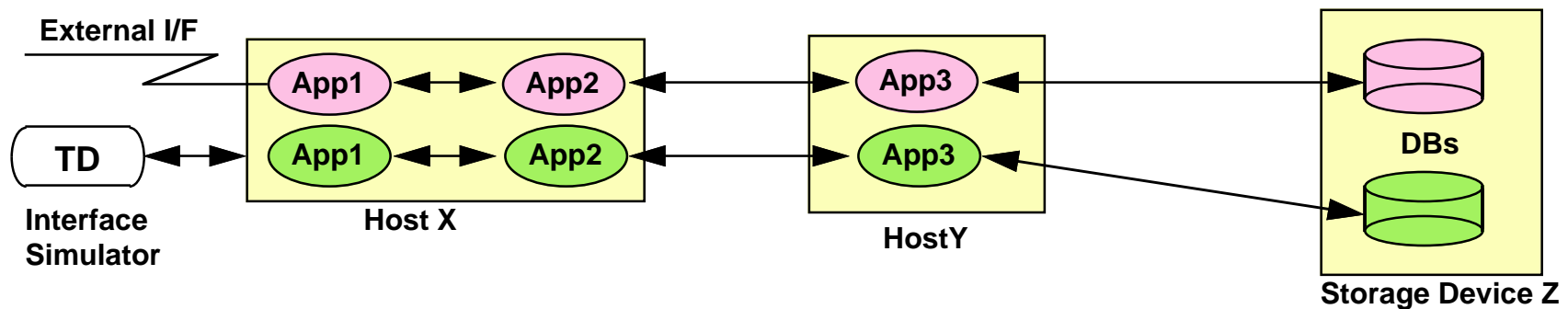
- Mode Management enables the simultaneous execution of multiple system activities

- No limitation on the number of concurrently active modes

- Mode initiation is under configuration control

- Mode Management design validation via prototyping

HW/SW Configurations

External I/F

App1 ⟷ **App2** ← **App3** → **DB**

HostX1   HostY1   Storage Device Z1

TD
Interface
Simulator

App1 ⟷ **App2** ← **App3** → **DB**

HostX2   HostY2   Storage Device Z2

Hardware Isolation

External I/F

TD
Interface
Simulator

App1 ⟷ **App2** ← **App3** → **DBs**

App1 ⟷ **App2** ← **App3** →

Host X   HostY   Storage Device Z

Software and Database Isolation (Shared Hardware)

HW/SW Configurations

External I/F

App1 ◄─► App2

TD

App1 ◄─► App2

Interface Simulator

Host X

App3

HostY

DB

Storage Device Z
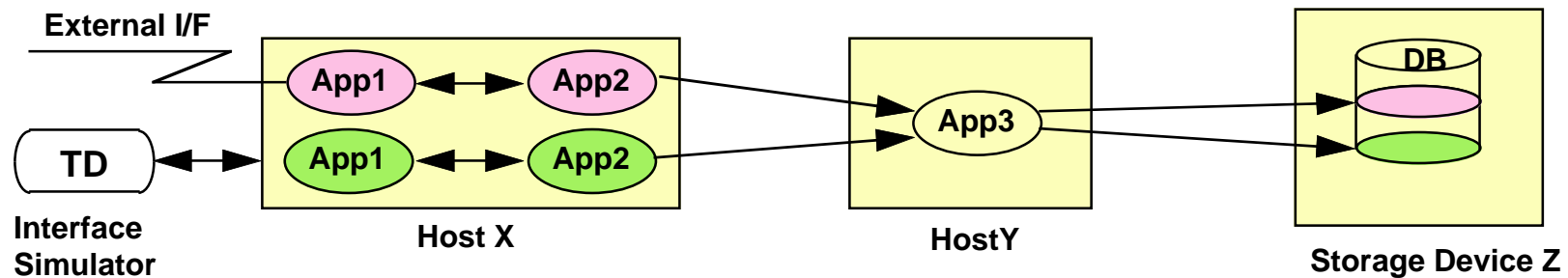
Partial Software Isolation with Data Isolation in Shared Database

Database Isolation

Data Isolation in Shared Database

DB

Storage Device Z

Storage Device Z

⬭ Operational Process/Device

⬭ Test Process/Device

⬭ Shared Process/Device